Restoring quality of life

Patients rely on you in order to eat, speak, and smile with confidence. It can be said, you are actually restoring quality of life.

To succeed, you need technology that is well founded and documented in science. That is why we only deliver premium solutions for all phases of implant therapy, which have been extensively tested and clinically proven to provide lifelong function and esthetics.

Moreover, with an open-minded approach, we partner with our customers and offer services that go beyond products, such as educational opportunities and practice development programs.

Reliable solutions and partnership for restoring quality of life—because it matters.
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ON THE COVER
Drs. Craig and Katherine Misch and their team.

CLINICAL CASES
Industry experts share their results using the latest advancements in implant dentistry.

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Visit London with us
Because it matters

LARS HENRIKSON
Group President DENTSPLY Implants

Speaking from personal experience, I know the importance of teamwork and team spirit. In Sweden, we have a sport called floorball, and I have been active as a player and as a coach in this indoor sport for many years. In a team sport, you are only as strong as your weakest link, everyone in the team is important, from the goalkeeper to the top forward, and everyone in the team brings their own unique skills and spirit. Everyone is needed to win.

In business, just like in team sports, things go up and things go down, but you don’t give up, not if you want to win and be successful. And we want to win, not for the sake of winning, but because we know that when we are successful and deliver what we promise, our implant treatment solutions make a real difference in people’s lives.

Right now, we have a strong focus on becoming better at customer service. We have initiated a global customer service project to be able to exceed your expectations of us. If you haven’t already, you will see and experience the effects soon. We are also adding several exciting new solutions to our portfolio this spring—the OsseoSpeed Profile EV implant that follows the anatomy of the patient instead of the other way around, and SYMBIOS regenerative solutions that promotes bone formation and stability. And also important is that we continue to challenge the industry with solid science and deliver evidence that what we do works for dental professionals and benefits the patients.

The DENTSPLY Implants team is here for you and your team. We are truly passionate about what we do, and we are working together for the sake of the dental implant patients—because it matters.

LARS HENRIKSON

DENTSPLY IMPLANTS WINS FACTORY OF THE FUTURE AWARD

The DENTSPLY Implants facility in Hasselt, Belgium, where SIMPLANT and ATLANTIS ISUS products are developed and manufactured, was named winner of the Factory of the Future Award 2015.

Factory of the Future is a European initiative under Horizon 2020, the European Framework Program for Research and Innovation 2014-2020. The mission is to identify the concept of future factories, formulate a vision and outline routes towards manufacturing technologies where the added value is high.

To be labeled a Factory of the Future requires achievements at a certain level in seven different areas. DENTSPLY Implants in Hasselt underwent an in-depth, independent audit following a few years of fine-tuning and balancing efforts in these areas. After scoring high in all seven of them, the company is now one of only four Belgian companies to receive this award, while 140 other companies are in the running. The award is a clear proof that DENTSPLY Implants is working in the right way and can look forward to a bright future when it comes to manufacturing and R&D facilities.

SOCIAL MEDIA PREDICTIONS FOR 2015

Here is what some of the experts believe will happen this year.

• Facebook will lose younger users.
• Instagram and Pinterest will be winners.
• Social media marketers will be phased out in favor of community managers that understand social media in the context of a broader ecosystem.
• There will be more videos and more paid posts.
• LinkedIn will have a renaissance.
• Interest-based networks will rise.
• Video blogging will become a common advertising channel.
• Location-based mobile marketing and personalized media will increase.
• Marketers will create their own newsroom to cut through content clutter.
• The full power of YouTube will be realized and utilized by marketers.
We are entering a time where the mobile screen is the primary screen and the computer plays second fiddle. In fact, many only use their phones or tablets to go online. This presents possibilities and challenges when it comes to your online presence. Here are a few thoughts and tips to consider.

1. **Use responsive web design.** Make sure your web layout changes to follow the screen size and resolution of the viewer. This way, you only make one site, rather than a normal one and a mobile one.

2. **Get to the point.** Forget weird designs; people are mobile, in a rush and want their information quickly, simply and without too much scrolling.

3. **Make sure you add functionality.** Mobile devices are what people use to handle most of their everyday business. Add the right kind of functions in your online communication to help people access and use your information.

4. **Communicate on the users’ terms.** You don’t have to answer tweets at 3 am, but modern users want answers fast and without fuss. When you enter this world, make sure you are ready to play by its rules.

5. **Be honest.** The only thing that is faster online than exposing a lie is telling the whole world about it. A reputation can be ruined within days, and the damage can be difficult, if not impossible to repair.

6. **Online is IRL.** It used to be a joke that once you left your social media channels you went IRL (In Real Life). That has changed; online is very much the real world, and to fully succeed with your marketing, you must include social media as an obvious media channel.

7. **ROI applies here too.** Don’t just create a Facebook page, a Twitter account or publish photos on Instagram. Make sure to formulate a strategy and follow-up on everything, so you can get a good return on your investment. Now, that’s really worth a “Like,” right?

8. **Whatever you do, be relevant.** The reach and number of visitors are losing importance. In order to get leads, you must be relevant, have the right timing and tell a story that holds over time and works on all screens.

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http://www.socialmediatoday.com/content/social-media-2015-10-perspectives
http://digitalpr.se/2015/01/04/digitala-trender-och-sociala-medier-2015/ [Swedish]
Dr. Craig Misch and Dr. Katherine Misch met at the University of Pittsburgh School of Dental Medicine in Pennsylvania. He was doing a Fellowship in Oral Implantology and she was a dental student performing intravenous anesthesia in the Dental Implant Center. Today they are married, and practicing together at Misch Implant Dentistry, located in Sarasota, Florida, USA. We decided to ask them about their views on living and working together, and how this affects their interaction with staff members and patients.
They have different areas of expertise, one complementing the other. Dr. Katherine Misch’s specialty is implant prosthodontics, while Dr. Craig Misch specializes in oral and maxillofacial surgery and prosthodontics. How do they combine their different competencies into a working business, and how is their professional partnership affected by the fact that they are married? “One of the main advantages with Craig is that I trust and value his opinion. He is honest with his compliments and honest with his criticism,” says Katherine Misch and adds, smiling, “the disadvantage is that he never sugarcoats his criticism.” Her husband says that they have worked together from day one and don’t know any other way. Before they opened this practice, they had one in Pennsylvania. Back in 1985, when Craig Misch graduated dental school, he went to work with his older brother Carl in one of the first clinics to focus on implant therapy.

“I guess you can say it has always been a family affair for me,” Craig Misch admits.

They honestly feel that their shared love for dentistry is more a necessity than a practicality, as Craig Misch explains. “I could not imagine being married to someone who does not have a passion and a really good understanding of dentistry. I am so involved in it. You know, people ask me if we turn it off when we get home. The answer is never—we often find ourselves talking about patients, treatments and office matters. Dentistry is such a big part of our lives.”

“THE NUMBER ONE FOCUS OF OUR PRACTICE IS PATIENT CARE; EVERYTHING ELSE IS SECONDARY.”
When asking their staff, they seem to agree and point to the united focus and common philosophy of the practice. There is a sense of family in the office. But of course, disagreements between the doctors can occur.

“This is something that Craig Misch acknowledges: “From the moment we walk through the office door, we are colleagues with great respect for each other, and must forget about any possible personal issues, so we can focus on caring for our patients. Generally speaking, the disagreements we have result from desires to provide the best possible care for our patients.”

One possible challenge with their marital status is the team concept of the clinic. They have delegated responsibilities since they perform different treatments. They cannot go around pointing fingers at each other whenever there is an issue or a problem. “I guess that is a bit unique,” says Craig Misch and explains how one might think of this as a complication when, in fact, it is a benefit. “We know each other so well and work together as a team. There are no egos to work around.”

They both believe in building a close-knit team, and Katherine Misch says that they always look for staff members who are excited about dentistry and committed to considerate patient care, strive for clinical excellence and have a good sense of humor. And it works, she adds, pointing to how their small, hard-working, efficient staff of five runs a large, productive and happy office. Her husband adds that in return for their motivation, the staff members are well-paid and receive extra vacation time.

FACTS IN BRIEF

NAME: Craig Misch
FAMILY: Married to Katherine Misch, three daughters
HOME: Lakewood Ranch, Florida
OCCUPATION: Oral and maxillofacial surgeon, prosthodontist
DOES DENTISTRY RUN IN THE FAMILY? I have two brothers that are dentists in Michigan and a daughter that is in dental school.

NAME: Katherine Misch
FAMILY: Married to Craig Misch, three daughters
HOME: I am a Pittsburgher at heart!
OCCUPATION: Prosthodontist
DOES DENTISTRY RUN IN THE FAMILY? Two of my five sisters are general dentists here in Florida, our eldest daughter is in dental school and my grandfather was also a dentist.
as well as medical and retirement plans. They have a full hour lunch break and they eat together in the clinic’s fully equipped, family kitchen as a team.

The five staff members all testify to how the doctors listen to them and are understanding when it comes to family issues and need for time off. While they are busy with patients four days a week, Fridays often offer a nice break and time to catch up on office maintenance as Craig Misch is often out of the office lecturing.

When it comes to formulating the Misch recipe for success, Katherine Misch is crystal clear: “The number one focus of our practice is patient care; everything else is secondary. There are six key factors that make all the difference: 1. Scheduling—trying to accommodate patient needs; 2. Attention to detail; 3. Being on time, minimizing patient wait; 4. Focusing on patient needs and desires when formulating treatment plans; 5. Surgical and prosthetic excellence; 6. Personalized care.” Craig Misch adds that honesty, fairness and integrity are important characteristics.

**THESE TRAITS HELP THEM** communicate better with staff members, patients and other dentists, the latter of course being an important referral base. “I think this builds trust in all professional partnerships,” says Craig Misch. “Not the least when it comes to giving our staff a clear understanding of our goals.” He also points to how they are dedicated to advanced education and cutting-edge technology and, above all else, they love what they do: “We are happy doctors. We have fun.”

How do they meet with their patients; what is their approach? “First of all, we give them time, review the treatment options and prepare them for their surgical and prosthetic procedures,” says Katherine Misch and explains that an informed patient is the best customer. “This is important,” Craig Misch continues. “Many treatment plans last a year, or maybe two years. In that time, a patient almost becomes family. They get to know us and we get to know them on a personal level. I also think it is important to point out that we don’t sell dentistry. We never pressure patients into treatment. I find that this relaxed approach is appreciated by patients and helps enhance our reputation.”

“Talking about relaxation, I have had many patients comment that Craig’s excellent whistling and humming has made them feel very relaxed. I wish I could whistle!” Katherine Misch says with a laugh.

**THE COUPLE PRAISES** their staff once again, exemplified by telling how Jennifer at the front desk answers questions from new patients better than they would, and how the calm demeanor and compassion of their experienced staff truly matters in the day-to-day patient relations.

Patient feedback is more than welcome, the two say. They understand that nobody really wants to undergo surgery, and they go to great lengths to make the patient experience as good as possible.

“I often joke when a treatment is completed—‘You were a wonderful patient. I hope you don’t lose any more teeth but you’re welcome to come back for more surgery anytime.’ My staff and patients can take this joke. They know we are very serious about patient care, but don’t want a stressful atmosphere,” Craig Misch says, and this lighthearted yet professional explanation finishes off our talk.

Outside, the Florida sun is shining on the white modern building, completely devoted to implant dentistry. And, it appears that there is a lot of sunshine within these walls too. It shows when you talk to the doctors and it’s echoed by their staff. The patients seem relaxed enough as they wait for treatment in comfortable leather chairs, watching television, surfing the internet or enjoying the view through large, one-way glass windows. They know that they’ve come to the right place to receive the best that Misch Implant Dentistry has to offer.
DESCRIBE A PERFECT DAY AT WORK

KATHERINE: I really love the delivery appointments, the final, finished product of all the hard work. The satisfaction of knowing that I was a part of changing someone’s life always makes my day. I love what I do and am so grateful to work with truly kind and gifted people, from my husband to our staff and laboratory support. A perfect day would also include food, from patient gifts to rep lunches, as well as a surprise subway sandwich from Craig.

CRAIG: I enjoy challenging surgeries that make me think; how I can improve the result. Reconstructive surgeries (large bone grafts) are one of my favorite procedures, as many of these patients did not think dental implant treatment was an option. I also enjoy the immediate implant teeth cases where patients come in with hopeless teeth (terminal dentition) and leave the office with fixed implant supported temporary teeth. I usually perform surgeries in the morning and consults or do postoperative visits in the afternoon. Meeting new patients and developing treatment plans to address their concerns is another challenge I enjoy.

NICOLE: All the patients show up on time (we run a tight ship).

JENNIFER: Helping a new patient understand the treatment plan.

NICCI: Making a patient less nervous about their surgery (explaining and educating helps).

ANGELA: Preparing for the more complex surgeries and seeing everything come together during surgery.

FARRAH: Delivery day, I love to see the reaction on the patient’s face when they look in the mirror.
By searching further and continuing to challenge with sound science, DENTSPLY Implants presents new evidence for dental implant therapy success, for the benefit of all patients.

**Maintained bone levels from implant placement**

Just losing a millimeter of marginal bone can be disastrous for the individual patient. This is especially true in compromised cases with limited amount of bone from the start. This is no news to you as a clinician, and neither is the fact that there is still a standard norm that accepts 1.5 millimeters of bone loss within the first 5 years.

**IT IS WELL** established that the ASTRA TECH Implant System is designed, and clinically proven, to maintain the marginal bone. It is also well established that, around healthy implants, the most bone remodeling occurs during the early healing phase, followed by stabilization of the bone levels during the first year in function. Therefore, to achieve an overall understanding of the complete bone remodeling the radiographic baseline should be at implant placement (IP). New evidence reporting on OsseoSpeed implants shows that the bone remodeling between IP and 1 year is 0.3 mm with stable bone levels up to 5 years.

**WHAT IS THE SECRET** behind the excellent and stable bone levels with the ASTRA TECH Implant System? The answer is the BioManagement Complex that has been thoroughly researched and documented for many years. A systematic review of the published scientific literature, including all prospective studies with at least one year of follow-up and a minimum of ten patients with OsseoSpeed implants, shows that these beneficial bone data are accurate and proven.

If we look at it from an esthetical point of view, as little as 0.5 mm bone loss can be the difference between healthy natural soft tissue and black triangles between teeth. This means that the ASTRA TECH Implant System, and its 0.3 millimeters, provides a solid base for esthetically successful treatments, which is confirmed in several long-term clinical publications.

**FINALLY, PATIENTS** treated with OsseoSpeed implants report a significant increase in their overall satisfaction with their implant treatment. And in the end, the only true way to determine treatment success is to see just how satisfied the patients are.

### REFERENCES REPORTING ON MAINTAINED BONE LEVELS FROM IMPLANT PLACEMENT

When I see a patient referred to the clinic for an “esthetic implant,” I know it will take more time and more energy than treating four posterior implants. One missing tooth is always a challenge, because the prosthetic solution has to imitate nature and match the neighboring teeth. I always try to imagine the best smile that I can provide for this patient. In esthetic cases, I always follow one rule: “I start where I want to end.” I start the surgery only when I know which final prosthetics the patient will get at the end.

IN MY EVERYDAY life at the clinic, I meet many patients with tooth loss due to physical trauma. I have decided to treat the majority of them with Immediate Implant Placement (IIP), simultaneously with Guided Bone Regeneration (GBR), Connective Tissue Graft (CTG) and Immediate Temporization (IT). Why? Because I want to reduce the surgical stages (IIP), limit the bone resorption (GBR), thicken the soft tissues around the implant (CTG) and work on the papilla with the provisional solution (IT). There are indications, prerequisites and lots of factors involved in the success of this technique.

FOR THE GBR, I use an algae derived material as bone substitute and a slow resorbable collagen membrane. The SYMBIOS Biphasic Bone Graft Material (BGM) and the SYMBIOS Collagen Membrane SR (slow resorbable) have optimized resorption kinetics to ensure a balanced ratio between resorption and volume stability during the healing phase according to clinical needs. These biomaterials allow a minimally invasive and more biologic approach of my surgeries in the anterior maxilla.

EXPERIENCE TELLS us that most patients are in need of implants in the esthetic zone, and they need bone and soft tissue augmentation to enhance predictable success. Experience, together with documentation, leads us to minimally invasive surgeries for maximum outcome in function and esthetics. The key to success in esthetics: spend a long time preparing the case and short time in surgery.

ANNE BENHAMOU
Dentist, oral surgeon, private practice in Paris, France

Follow-up time (IP) | 1 year | 2 years | 3 years | 5 years
--- | --- | --- | --- | ---
No. of implants | 1717 | 408 | 341 | 295
Average bone level reduction | -0.31 | -0.28 | -0.32 | -0.18

Inclusion criteria: studies with radiographic baseline at implant placement (IP), articles published in English in peer-reviewed journals, prospective studies reporting on at least 10 patients followed for at least 1 year, standard implant surgery in healed ridges, unrestricted loading protocols and prosthetic solutions. Literature search performed March 2014.

Well-documented implant systems allow clinics to respond on a factual, tested basis and offer their patients solutions that last throughout their lives. DENTSPLY Implants magazine went to Germany to meet Dr. Helmut G. Steveling, who has worked with dental implants since 1987, to discuss the importance of relying on long-term documentation in the clinic’s everyday work.

Documentation for LIFELONG QUALITY

How long have you been working with dental implants?
“I started working with dental implants in 1987. That was two years after joining the department of maxillofacial surgery at the University of Würzburg, Germany. In 1992, I moved to Heidelberg and started working with the ASTRA TECH Implant System. It was not very well known in the German market at that time, but I read about it in dental literature and was convinced that it would be a solution for many problems we had back then.”

What was it that this system could solve that other implant systems could not?
“The major problem at that time was fixation of the abutments to the implants, so we had to check the fit with an X-ray. This was done at university hospitals and was a time-consuming procedure. The conical fit made it easy to place the abutments and then start with the prosthetic restorations.”

How important is clinical documentation to you when choosing an implant system?
“It is the number one priority for everybody who works with dental implants. It gives you confidence in the system and if you can reproduce the results of the documented work, this is of course perfect. This was the whole point of the ASTRA TECH Implant System. The strength of the system was that we could read about it in the manuals and dental literature.”

Is long-term documentation of implant systems something that you talk about with your patients?
“Yes, I do, in the very first meeting. I know that the long-term function of the implant system is very important for the patient and with long-term documentation I can convince most of my patients. It is not a short-term treatment but a lifelong investment.”

What are the most common questions your patients ask you about dental implants?
“If there is any pain after the implant surgery and if you are familiar with the surgical techniques. The next question is ‘How long do implants last in my mouth?’ So the long-term results are very important to patients.”
“LONG-TERM RESULTS ARE VERY IMPORTANT TO PATIENTS."

What is the main difference working with dental implants 20 years ago compared with today?
“Well, from a surgical point of view, the actual work with dental implants is fairly similar. Of course we have a different surgical protocol, especially today with the new ASTRA TECH Implant System EV, but from a surgical point of view, placing an implant is very similar to what it was 20 years ago. The possibilities for the reconstructive phase of implant treatment have changed a lot, however. With new developments in CAD/CAM implant systems, the scope for the reconstructive phase has changed enormously. The workflow, on the other hand, is more or less the same.”

20 years of perfect function

One of Dr Helmut G. Steveling’s patients is his father-in-law Gerhard Merkle. Back in 1995, Steveling placed seven implants in his then 65-year-old patient—a solution that continues to function equally well to this day.

As many in his generation did, Gerhard Merkle lost some of his teeth as a child, when dental care was different than it is today. He lived with a fixed bridge for many years but the chewing capacity was severely reduced. When in his sixties, he decided to do something about it. For him, the only treatment alternative was dental implants. Seven implants were placed, one in the front and six in the molar regions.

At the end of 2014, almost 20 years after the implants were first placed, Gerhard Merkle returned to the clinic.

Dr. Helmut G. Steveling with his patient and father-in-law Gerhard Merkle. For more information about how DENTSPLY Implants works with documentation, visit dentsplyimplants.com/science.
The checkup revealed that all the implants still functioned perfectly.

**Dr. Steveling, tell us a about your patient.**

“Gerhard Merkle has a reconstruction that is screw-retained, including double crowns over his canines. He chose composite veneering at that time, because he did not like the contemporary hard ceramic material. Over almost 20 years of use, the veneering gradually became discolored and showed signs of abrasion. So we removed the framework and put another veneering layer on it.”

**JUST LIKE IN 1995,** a prosthetic supra-structure was chosen, but this time, the use of modern materials permitted stress-free fit, lower weight and great color-resilience for the veneer.

“With use over time, many patients will need a new concept, like a new bridge or crown. So, it is very important that I still can work with the same components,” says Dr. Steveling.

**IT HAS NOW BEEN** 20 years since Gerhard Merkle received his dental implants. Today he is an active 85-year-old, who thoroughly enjoys life again.

“There is no better solution other than your own teeth. I can eat anything. During these 20 years, I haven’t thought about my implants. They are like my own teeth,” says Gerhard Merkle.

The x-ray image shows the implants, which are still securely anchored in the jawbone.
OsseoSpeed Profile EV

**Scale: 12:1**

**360° bone preservation in sloped ridges**

OsseoSpeed Profile EV is a unique implant specifically designed to follow the existing bone in sloped ridge situations. The design maintains soft tissue esthetics and can help reduce the need for bone augmentation. It is well documented that crestal bone resorbs after tooth extraction or tooth loss. Resorption is often pronounced on the buccal side, resulting in a lingual-to-buccal sloped ridge. This situation occurs even if a standard implant is immediately placed in the extraction socket.¹

Because bone-to-implant support is three-dimensional, it is important to have marginal bone support around the entire implant. Preserving the buccal and lingual marginal bone in a sloped ridge situation will also positively influence mesial and distal marginal bone levels, which optimizes soft tissue esthetics.

This is what is meant by 360° bone preservation in sloped ridge situations.

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IN THE SPOTLIGHT

THE CHALLENGE OF SLOPED RIDGES
Situations with sloped ridges have traditionally meant a compromise between buccal and lingual marginal bone preservation and esthetics. With the introduction of the OsseoSpeed Profile EV implant, this clinical challenge is solved. The uniquely shaped implant makes it possible to achieve 360° bone preservation around the implant.

Adapting to nature—a successful approach

The hopes and dreams of the patients sitting down in the dentist’s chair are not primarily to get an implant. Rather, the treatment supports a greater need—the ability to dare to smile again with confidence, to socialize naturally with family and friends and, quite simply, to enhance the quality of life. Since the first implants were developed 50 years ago, the innovation has enriched the lives of people worldwide. And the development is constantly moving forward, with new solutions that improve people’s wellbeing. At the same time, there are cases and situations where there are greater challenges to satisfy both esthetics and function. One such situation is when you have patients with sloped ridges. The occurrence is common, and it has been a challenge to find esthetically pleasing and long-term functional solutions for patients with sloped ridges.

There are several reasons for this. It is a clinical reality that the bone crest resorbs after tooth extraction or tooth loss. It is also well known that remodeling has been shown to be more pronounced on the buccal side than on the lingual side, often resulting in a sloped alveolar ridge. This condition occurs even if a standard implant is immediately placed in the extraction socket.

The clinical situation means that there has previously been no optimal solution for treating patients in sloped ridge situations. When a standard implant is placed level with the lingual bone, the implant neck is exposed and the esthetic result is compromised on the buccal side. On the other hand, when a standard implant is positioned level with the buccal marginal bone, unsupported lingual marginal bone will be lost and the mesial and distal marginal bone levels, as well as soft tissue height, are compromised.

To summarize, neither of these alternatives are optimal.

The most natural solution to this challenge is to use an implant that follows the alveolar ridge. And that’s the main benefit of the OsseoSpeed Profile EV—360 degrees of bone preservation with maintained soft tissue esthetics. In addition, the design can help reduce the need for bone augmentation procedures. That is also why the OsseoSpeed Profile EV implant is an evolutionary innovation for both patients and clinicians. The implant system provides a unique opportunity to efficiently create both esthetic, functional and patient-friendly solutions.

The first generation of the OsseoSpeed Profile implant was introduced by DENTSPLY Implants in 2011. But the story begins much earlier, in Lake Forest, Illinois, USA, with Dr. Richard D. Cottrell. Years ago, when Dr. Cottrell was about to place an implant in a sloped ridge, he realized that the existing alternatives, i.e. standard implants, were not satisfactory enough. It would be much more logical to have an implant designed to follow the presenting bony topography, Dr. Cottrell discovered. The optimal solution should be a sloped implant that is designed to be in harmony with the ridge profile and uses available bone efficiently.

As a pioneer Dr. Cottrell began to develop the product which later was patented and became the foundation of today’s OsseoSpeed Profile EV implant. The new generation has been further developed by DENTSPLY Implants after feedback from customers and dental professionals around the world. The main improvement is that the new implant is an integral part of the ASTRA TECH Implant System EV, incorporating all of its simplicity and design principles. When working with OsseoSpeed Profile EV, the ability to identify the location of the apical slope of the implant is critical to the simplicity and predictability of the treatment process. Therefore, all indexed components seat into the implant in one-position-only, aligning the components with the slope of the implant. The restorative procedure is further simplified by the self-guiding impression components that engage into the implant only when correctly seated. All these enhancements allow for an accurate and simple clinical workflow. For the patient,
the improvements regarding simplified surgical and restorative handling procedures mean reduced chairtime.

One of the dental professionals with the most experience of working with this implant design is Prof. Dr. Dr. Wilfried Wagner, from Johannes Gutenberg University Mainz, Department for Oral and Maxillofacial Surgery, Germany.

“The sloped design lets the implant adapt to the anatomy rather than letting the anatomy adapt to the implant design; this works particularly well for placement in the esthetic zone,” says Prof. Wagner. He also points out the versatility of the implant as the design allows for efficient use of available bone when placed in other directions than the lingual-buccal direction.

Another well-respected and leading clinician that has been part of the very first OsseoSpeed Profile multi-center study starting in 2008 and putting the product to the test, is PD Dr. Robert Nölken from Lindau, Germany.

“THE PRODUCT HAS greatly helped to reduce the amount of bone grafting, which was necessary with older implant styles. We no longer need to choose between lingual or buccal bone preservation. When correctly placed it is possible to achieve predictable, esthetic outcomes,” says Dr. Nölken.

As with all DENTSPLY Implants products, the applicability of clinical use, reliability of product performance and documented long-term predictable results is critical. The Profile implants are being evaluated in several ongoing studies and the results show, among other things, high implant survival rate, stable hard and soft tissue levels and preserved discrepancies between buccal and lingual bone levels. A significant increase in the width of keratinized mucosa in patients with compromised soft tissue has also been reported.

PD DR. ROBERT NÖLKEN confirms the results.

“In our studies, my assessment of the product has been overwhelmingly positive. Firstly, we have found that it is possible to maintain the marginal bone level around the circumference of the OsseoSpeed Profile implant in situations where the alveolar crest is sloped from the lingual towards the buccal aspect. This is important because the bone resorption following an extraction of a tooth is always more pronounced at the buccal aspects. This results in a crest profile that is often up to 2 mm lower than the buccal side. Secondly, we have seen a great deal of improvement of the peri-implant soft tissues in our research follow-up. This allows us to treat patients with thin biotypes and have a good esthetic outcome,” says Dr. Nölken.

Main conclusions:
- High implant survival rate
- Stable hard and soft tissue levels
- Preserved discrepancies between buccal and lingual bone levels

A significant increase in the width of keratinized mucosa in patients with compromised soft tissue has also been reported (see figure). 1


OsseoSpeed Profile EV is the second generation of the uniquely shaped implant specifically designed for sloped ridge situations that allow you to achieve 360° bone preservation. We asked three distinguished clinicians to give us their perspective on this solution.

Three perspectives...


“The innovative and sloped design of the OsseoSpeed Profile EV is truly a unique feature. And it fills that gap in compromised situations like immediate installation, sloped ridges and tilted implant positions. With the new one-position feature of all indexed components and new impression copings, the prosthetic part of the treatment is simplified. Add UniAbutment possibilities for screw-retained cases and the indication is widened to suit most clinical situations.

I LIKE HOW the smartness of the sloped design fits most resorbed ridges and eliminates the need for deeper placements with a standard implant collar. For immediate implant installations, you get an extra safety margin and avoid thread exposure after ridge remodeling, which is an aesthetic advantage.

I think the one-position feature has improved clinical handling compared to OsseoSpeed Profile TX and makes implant positioning, impression taking and prosthetic placement of ATLANTIS abutments a lot easier.”

DR. MARCUS DAGNELID
DDS, Board Certified Prosthodontist, CEO, Dagnelid Clinic, Gothenburg, Sweden

“OSSEOSPEED PROFILE EV IMPLANTS ALLOW THE IMPLANT TO BE POSITIONED CONGRUENTLY WITH THE ALVEOLAR CREST.”

“To me, the main advantage of the implant is the ability to match uneven alveolar bone crest. And I see three cases that are typically suitable for the implant.

First, when the labial alveolar crest in the maxillary anterior region has a more apical location than the palatal crest and its extraction socket is slated for immediate implant placement. Second, a post-extraction resorption pattern in the mandibular posterior region, which typically leads to an uneven alveolar crest. Finally, tilted implants for full-arch reconstruction that create a mismatch between the alveolar crest and the platform of posteriorly-tilted flat-top implants. In the latter case, the OsseoSpeed Profile EV implants allow the implant to be positioned congruently with the alveolar crest.

For patients, an implant whose platform matches the alveolar crest minimizes three unfavorable scenarios: the need for bone reduction before implant placement to create an even alveolar crest, deep implant placements to position the facial platform of the implant relative to the bone crest and bone augmentation to increase the facial alveolar bone width.”

DR. HOMA ZADEH
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“THIS PROFILE IMPLANT FILLS A NICHE NO OTHER IMPLANT IS CAPABLE OF FILLING.”

“This profile implant fills a niche no other implant is capable of filling. It is excellent for immediate implant placement in the maxillary anterior sextant, especially with thin periodontal biotypes, as it allows the facial fixture level to be inserted to the right level without placing the proximal margins too deep.

In esthetically sensitive cases, standard implants require an apical positioning to assure the facial margins of the abutment and restoration are submucosal and esthetically-pleasing. This may compromise the implant’s position related to the proximal bone. The OsseoSpeed Profile EV eliminates this issue.

Surgically, handling of OsseoSpeed Profile EV and OsseoSpeed Profile TX is quite similar, but the insertion driver is better marked with the EV version. Restoratively, there is a great improvement regarding the snug fit of impression copings and abutments. There is a very positive, tactile feel when seating the components.

To summarize, I think that providing an implant that fits the anatomy of sloped ridges and scalloped extraction sockets is an evolutionary step by DENTSPLY Implants that no one else has been able to replicate successfully.”

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Meeting new demands

The evolution of the dental implant

When the first dental implants were placed by Per-Ingvar Brånemark in Gothenburg, Sweden, in 1965, the focus was on function. People without teeth were given the chance to a better life. Now, however, there are far more demands, and they are much more multi-faceted. We spoke about this development with one of the world’s foremost experts in this area, Tomas Albrektsson.

Tomas Albrektsson was one of the young medical students who participated in the development of the first titanium dental implants during the 1960s. Just three years after the head of the group, Per-Ingvar Brånemark, had discovered that titanium and bone tissue could fuse, or osseointegrate, the team carried out surgery to insert the first dental implant.

“The first 15-20 years were tough, not least for Per-Ingvar, who suffered a lot at the hands of people who didn’t have a lot of faith in dental implants,” reveals Tomas Albrektsson.

IN THESE INITIAL years, function was firmly in focus. Tomas relates that several of those early patients were desperate for a solution to their toothless condition. Prosthetics that did not fit well and that functioned poorly when chewing food were the norm. In addition, there was a lot of shame involved—there were even cases where people concealed from their spouses that they had dentures.

Although many people were helped by the implants, there were several limitations. During the 1970s, implants were only inserted in front of the canines. In the lower jaw, the nerve ducts behind the canines made it complicated to insert implants there, and in the upper jaw, the limitation was the hollow recesses in the bone.

“We focused on inserting four lower-jaw implants, and then built the prosthesis with an overhang to the rear. Surgically placing implants behind the canines was not a good solution, as with the passage of time, people without teeth suffer from poor bone density, which further complicated the treatment.”

THE SOLUTION CAME in the 1980s with the development of shorter implants, which made it possible to extend the treatment area further into the mouth. At about the same time, dental implants were also beginning to be used for more esthetic reasons. The huge increase in single implants came as a surprise to Tomas Albrektsson.

“We weren’t prepared for the massive demand from patients who wanted single implants. The market exceeded all our analysts’ forecasts.”

As the target group expanded beyond patients without any teeth at all, the demand for faster treatment also started increasing. Tomas relates that an experienced surgeon can today insert a couple of implants an hour, whereas it could take an entire day to do a similar job in the 1970s. Back then it also took three to six months for the screw to heal before it could be loaded, whereas today with new inventions such as the ASTRA TECH Implant System with the OsseoSpeed surface, the healing process has sped up and the lead time from surgery to loading has been drastically reduced.

“Our surveys revealed that the operation was perceived as a huge burden by the patient. And of course, the fewer visits and treatments that are necessary, the better.”

TODAY, AS DIGITAL technology takes the industry by storm, patients can get their implants and teeth in just one visit. Modern implants, dental scanning, CAD/CAM planning and guided drilling all help cut treatment time and initiate prompt healing.

“I’m no expert on the new computerized solutions,” says Tomas Albrektsson, “but the fact that the market has expanded this way is quite simply because the implants function so incredibly well. There are few complications and the gains for the patients are enormous. When we started out, we knew all our patients by their first names. Today, two million implants are surgically placed in patients every single year in the US alone.”

Per-Ingvar Brånemark died on Dec. 20, 2014 in Gothenburg, Sweden, his hometown. He was 85.
EDITORIAL
Dr. Ricarda Jansen talks about the quality of life that new teeth bring.

CLINICAL CASES
Experienced dental professionals share their results using the latest advancements in implant dentistry.

Panoramic x-ray after installation of the final prosthetic restoration. Read the whole case, starting on page 25.
WHILE TRAVELING BACK to Germany from the DENTSPLY headquarters in York, PA, recently, I had a conversation with the woman sitting next to me on the plane. At some point, we talked about my work and started discussing dental implants. She told me excitedly that her mother had just had the wax try-in of her new teeth a few days previously, after going several months without teeth, i.e. sufficient denture. In addition to having the actual implants placed, she also needed bone grafting in the mandible.

THE MOMENT WHEN the elderly woman had teeth again was just wonderful. To show me just how fantastic her mother’s new prosthesis was, she pulled out her mobile phone and showed me photos that she had made at the appointment during the fitting. It really was impressive to see what a difference the dentures made, not only esthetically—it was obvious how good the patient felt about and with her new teeth—but also the quality of life that these new teeth meant for her, was obvious even in a photograph taken with mobile phone.

My new acquaintance told me that they were planning to celebrate, with a party, as soon as the prostheses were placed. I am certain that you often experience this joy in your daily work, especially when older, edentulous patients can eat, speak, and above all, smile and laugh again.

Although overall dental health has improved in recent years, especially in Western countries, there are still a high percentage of edentulous individuals. Unfortunately, this mainly affects people with low incomes. This is why it is important to be able to provide a variety of evidence-based, safe treatment concepts that take different patient requirements and budgets into consideration. The SynCone concept, in combination with the ANKYLOS system, has been established in the market for 15 years and has been clinically tested and documented. It is a treatment option with high quality, very stable fixed prostheses at a reasonable price; removable dentures that feel like permanent dentures.

THE SUCCESS and the high level of patient acceptance for the SynCone concept convinced us to open this telescope-based technology for other systems as well. With ATLANTIS Conus, this concept can now be used for many different systems, of course with the same high CAD/CAM accuracy expected from ATLANTIS patient-specific solutions.

Today, there are many different digital solutions for edentulous and partially edentulous patients. For example, the combination of SIMPLANT guided surgery and CAD/CAM-produced ATLANTIS ISUS superstructures makes it possible to restore patients with custom-made bridges and bar constructions of the highest quality and precision.

THIS ISSUE also focuses on the use of SYMBIOS solutions for the reconstruction of lost bone structure in combination with ANKYLOS, and case reports using ASTRA TECH Implant System.

Enjoy and be inspired! ✨

DR. RICARDA JANSEN
Director Clinical Affairs & Education DENTSPLY Implants

CONTENT CLINICAL CASES

Conventional sinus floor elevation with a new biphasic bone graft material and a slow-resorbing collagen membrane.
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Functional hard and soft tissue preservation in the sloped alveolar ridge.
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When reconstructing the posterior maxillary region, in the absence of residual bone, the dental surgeon must often consider a surgically invasive augmentation procedure to compensate for the bone atrophy that occurs after prolonged tooth loss. In order to create a proportionally sized implant site, augmentation with autogenous bone, bone-substitute material, or a combination of both may be advisable. What is often required in these cases is a sinus-floor elevation in order to achieve sufficient vertical bone height. In the present case, the “layering principle” was applied to the sinus-floor elevation, using a combination of graft materials. The goal of this treatment was not only to ensure the long-term stability of an esthetically successful prosthesis, but also to ensure the volume stability of the augmentation during the healing phase.

CASE STUDY

PATIENT: A 53-year-old female patient with an edentulous gap in her left molar region requested a fixed implant-supported restoration that would not require removal of the existing crowns on teeth 24 and 27.

CHALLENGE: Create a sufficient amount of bone to enable implant placement in sites 25 and 26, using the layering principle.

TREATMENT: Sinus-floor elevation was performed in the left maxilla, filling the bony defect with slow resorbing graft material and autogenous bone covered by a slow-resorbing collagen membrane (the layering principle). Implants were then placed in sites 25 and 26 and subsequently restored with metal-ceramic splinted crowns.

SUMMARY

PRODUCTS USED:

Conventional sinus floor elevation with a new biphasic bone graft material and a slow-resorbing collagen membrane membrane.

FIG. 1 CBCT initial situation and backward planning.

FIG. 2 Initial clinical situation.

FIG. 3 Lateral window for the sinus floor elevation.

FIG. 4 Preparation of the Schneiderian membrane.

FIG. 5 Bone condensing region 25.

FIG. 6 Autogenous bone chips from the implantation site.

FIG. 7 Introduction of the bone chips into the crestal area of the sinus.

FIG. 8 Mixing the biphasic bone substitute material with autogenous blood.

FIG. 9 Introduction of the prepared bone substitute material into the cranial region of the sinus.

FIG. 10 Grafting of the operation area.

FIG. 11 The sinus filled according to the layering principle.

CASE STUDY BY:

FRANK ZASTROW
A 53-YEAR-OLD female patient presented missing teeth 25 and 26. She asked for a fixed implant-supported partial denture in order to avoid having to remove the existing crowns on 24 and 27. The many years of edentulism had resulted in a high degree of bone atrophy and an extremely strong maxillary sinus pneumatization (Figs. 1 and 2).

To create access for the sinus-floor elevation, a vestibular maxillary sinus window was created, and the Schneiderian membrane in contact with the bone was incised (Figs. 3 and 4). The 25 site was then condensed using bone condensors (DENTSPLY Implants) to achieve better mechanical bone strength and guarantee sufficient implant primary stability (Fig. 5). In accordance with the layering principle, the cranial defective portion of the osseous defect was filled with a new, biphasic, completely resorbable bone graft material (SYMBIOS Biphasic Bone Graft Material, DENTSPLY Implants), while the area close to the implant was filled with autogenous bone chips from the implant site (Figs. 6 and 7). This arrangement allowed the implants to be anchored more firmly in the patient’s own bone, while the slow resorbing bone graft material protected against too rapid a resorption caused by the pressure in the maxillary sinus. The new biphasic bone graft material consists of 80% tricalciumphosphate (TCP) and 20% hydroxyapatite (HA). TCP provides gradual remodeling into vital bone. HA in combination with the honeycomb structure of the material provides sufficient volume stability of the graft during the healing phase. Prior to its incorporation, this material was mixed with autogenous blood, and after coagulation, it was incorporated into the defect with the insertion instrument (Figs. 8 to 10). Figure 11 shows the sinus after filling. The advantage of combining bone graft material and autogenous bone is that the healing time is typically only 3.5 to 4 months, compared to 8 to 9 months when solely bone graft material is used.

AFTER FILLING THE OSSEOUS defects, an ANKYLOS C/X implant measuring 3.5 mm in diameter and 11 mm in length (DENTSPLY Implants) was inserted in site 25 (Fig. 12). To cover the defect, a SYMBIOS Collagen Membrane SR (DENTSPLY Implants) whose properties matched that of the bone graft material was hydrated for 5-10 minutes in a saline solution (Fig. 13) to facilitate easier adaptation of the membrane to the wound area. It was then affixed to the grafted site with tacks (Figs. 14 to 17), and the wound was closed in a tension-free manner (Fig. 18).
THREE AND A HALF MONTHS later, the surgical site was exposed again (Fig. 19) and showed complete ossification. Newly formed bone was then removed from site 26 with a trephine drill (Fig. 20). Subsequent histological examination showed new bone formation with relatively little evidence of the inflammation typically associated to bone remodeling. The bone at the site was condensed using bone condensers for better primary stability, and the second planned ANKYLOS implant (3.5 mm in diameter, 11 mm in length) was placed (Figs. 21-23). Figure 24 shows site 26 four months after implant placement. At this time, the flap was apically repositioned to move the keratinized mucosa buccally. This procedure ensures the mucosa around the implants will be fixed and immoveable (Figs. 25 and 26). On the postoperative radiograph, the position of the implants (Fig. 27) proved to be exactly as planned preoperatively, with the placement slightly subcrestal. The final prosthesis was incorporated 9.5 months after the sinus-floor elevation. Figure 28 shows the CAD/CAM-fabricated ATLANTIS ISUS Bridge on teeth number 25 and 26. Teeth 24 and 27 were provided with metal-ceramic single crowns, while the crowns in sites 25 and 26 were interlocked for additional stability. The ATLANTIS ISUS Bridge was screw-retained onto the implants via Balance Base abutments. With this screw-retained solution the risk of excess cement in the sulcus and the associated risk of peri-implantitis is avoided (Figs. 29 and 30).

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Summary

Patient: 71-year-old female patient with the need of extracting seven teeth in the maxilla due to secondary caries, apical osteitis, and general bone loss.

Challenge: The patient requested an aesthetic and fixed restoration with easy hygiene maintenance.

Treatment: Seven weeks after the hopeless teeth were extracted, six ANKYLOS C/X implants were inserted in the edentulous upper jaw. After a healing period of 3 months, the second stage surgery was performed. The final restoration was a friction-retained prosthesis supported by six ATLANTIS Conus abutments.

Case Study by:

Claudia Mrosek  Jan Stöckel

Initial Situation. The 71-year-old female patient presented at the clinic with two tooth-supported maxillary bridges that required removal due to secondary caries, apical osteitis, and general bone loss. The patient requested a fixed restoration with high esthetics and easy hygiene maintenance.

Clinical and radiographic examination showed that sufficient bone was available for placement of six ANKYLOS C/X implants (DENTSPLY Implants).

After treatment planning and discussion, the patient consented to extraction of the seven remaining maxillary teeth.

Final prosthetic restoration

FIG. 1 Edentulous maxilla seven weeks after tooth extraction
FIG. 2 Implant placement
FIG. 3 Tight sutting
FIG. 4 Gingiva formers in place
FIG. 5 Transfer copings for closed-tray impression
FIG. 6 Individual tray
FIG. 7 Design of the abutments
FIG. 8 ATLANTIS Conus abutments on the stone model
FIG. 9 ANKYLOS SynCone caps
FIG. 10 Cobalt-chrome framework with abutments and caps

Case Study

ATLANTIS™ Conus abutment—treatment of a fully edentulous maxilla

Clinical and radiographic examination showed that sufficient bone was available for placement of six ANKYLOS C/X implants (DENTSPLY Implants). After treatment planning and discussion, the patient consented to extraction of the seven remaining maxillary teeth.

Final prosthetic restoration

Case Study

ATLANTIS™ Conus abutment—treatment of a fully edentulous maxilla

Clinical and radiographic examination showed that sufficient bone was available for placement of six ANKYLOS C/X implants (DENTSPLY Implants). After treatment planning and discussion, the patient consented to extraction of the seven remaining maxillary teeth.

Final prosthetic restoration
edentulous maxilla

teeth followed by a friction-retained prosthesis supported by six ANKYLOS C/X implants and six ATLANTIS Conus abutments (DENTSPLY Implants). During the healing period, the patient was provided with an immediate temporary denture that was relined several times to minimize soft-tissue trauma.

SURGICAL TREATMENT. Seven weeks after the extractions (Fig. 1), a mucoperiosteal flap was elevated by making a crestal incision from region 16 to 26 with relief incisions buccally in region 16 and 26 as well as buccally and palatally in region 11/21. The six ANKYLOS C/X implants were placed slightly subcrestally in regions 15, 14, 11, 21, 25, and 26, using a conventional drilling protocol (Fig. 2). The placement heads were removed and replaced by cover screws. This first stage of the two-stage surgical protocol was completed with tight suturing (Fig. 3). Directly after surgery, the patient was provided with the relined temporary denture.

PROSTHETIC TREATMENT. Impressions were taken two weeks after the second-stage surgery. The gingiva formers were exchanged for transfer posts, and a closed-tray impression (Fig 5) taken with an individual tray and polyether impression material was taken (Fig. 6). In the dental laboratory, the cast model was scanned, and 4-degree-angled conical abutments were designed using ATLANTIS V AD software (DENTSPLY Implants) (Fig. 7). The final abutment designs were sent digitally to DENTSPLY Implants in Mölndal, Sweden, where the six ATLANTIS Conus abutments were produced (Fig. 8). To connect the abutments to the bridge framework, prefabricated tapered ANKYLOS SynCone Caps were used on top of the ATLANTIS Conus abutments (Figs. 9 and 10).

To achieve precise fitting in the mouth, the laboratory provided transfer keys made from light curing composite to connect the ATLANTIS Conus abutments to each other (Fig. 11).

In the next step, the gingiva formers were replaced by the six ATLANTIS Conus abutments with the help of the transfer keys. The abutments were torqued to the implants with 15 Ncm (Fig. 12). After test for perfect fit of the SynCone Caps and framework in the mouth, the SynCone Caps were cemented to the cobalt-chrome framework intraorally using dual-hardening cement (Figs. 13 and 14).
CASE STUDY

ATLANTIS™ CONUS ABUTMENT—TREATMENT OF A FULLY EDENTULOUS MAXILLA

for mixing the cement is highly recommended. After the cement had cured completely, the fit of the framework, including the SynCone Caps, was checked and the framework then removed from the mouth (Fig. 15). A new impression was taken using an individual tray and polyether impression material to pick up the cobalt-chrome framework (Fig. 16). The six ATLANTIS Conus abutments were not replaced by the gingiva formers again. Therefore the temporary denture had to be largely adjusted to provide space for the abutments, and relined once again.

A new master cast was created in the laboratory. The framework was used to create a bite registration (Fig. 17). After defining the plane of occlusion, the tooth setup was made in the laboratory (Fig. 18). Before finalizing the removable prosthesis, the wax tooth setup was sent by the laboratory for the final clinical try-in (Fig. 19).

To avoid a metallic gray shadow, the cobalt-chrome framework was treated with a pink opaque composite (Fig. 20) before processing the prosthesis in acrylic (Figs. 21 and 22).

Figures 23 and 24 show the removable prosthesis after it was finalized and polished. The final palate-free restoration was inserted in the patient’s mouth (Figs. 26 and 27) and checked with an OPG (Fig. 25).

CONCLUSION. The treatment described in this case was delivered before the ATLANTIS Conus abutments were officially introduced in the summer of 2014, and the abutments were only available with a 4-degree angle.

Due to the perfect retention with that angulation, the patient had some problems removing the prosthesis for cleaning. Therefore, a decision was made to remove two of the ATLANTIS Conus abutments (14 and 25) and seal those implants with gingiva formers. This made it easier for the patient to remove the prosthesis, but could still provide the comfort of a fixed restoration when chewing.

To avoid this problem, the ATLANTIS Conus abutments are today only available with a 5-degree angle.

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FIG. 21 Prosthetic jig for acrylic pulverization.

FIG. 22 Processed prosthesis in acrylic on the model.

FIG. 23 Final prosthesis, occlusal view.

FIG. 24 Final prosthesis, basal view.

FIG. 25 Panoramic x-ray with abutments and prosthesis in place.

FIG. 26 Final prosthesis in situ, occlusal view.

FIG. 27 Final prosthetic restoration.
Angulated Screw Access concept shifts the functional and esthetic boundaries of computer-aided implant dentistry

SUMMARY
PATIENT: A 41-year-old female patient with an edentulous maxilla, unsatisfied with her removable prosthesis requested a fixed restoration with immediate restoration to restore masticatory function and esthetics.

CHALLENGE: To provide the patient with an immediate fixed dental restoration in the maxilla with soft bone quality. Unfavorable implant positions further complicated achievement for esthetic results.

TREATMENT: Placement of eight implants was planned with the SIMPLANT software with a final screw-retained bridge in mind. In order to gain an acceptable esthetic result, the screw-access channels of the definitive prosthesis—ATLANTIS ISUS bridge—were angulated.

ONE OF THE LATEST developments from DENTSPLY Implants is the angulated screw access (ASA) concept for ATLANTIS ISUS Bridge and Hybrid. This feature opens up new functional and esthetic options when fabricating screw-retained dental prostheses. It allows for creation of a screw channel at an angle of up to 30° to the implant axis, thereby enabling a more functional and esthetic screw-retained prosthesis.

The case presented here shows the individual steps involved, from implant positioning to fabrication and delivery of a screw-retained bridge. Although the temporary prosthesis was screwed in conventionally, the final prosthetic restoration, delivered three months later, achieved much better esthetics—exclusively due to the displacement of the screw-access channels.

Depending on the bone availability at the implant site, it is not always possible to place every implant in optimal positions for the prosthesis. Unfavorable implant axes make the fabrication of the prosthesis more difficult, which may significantly influence the functional and esthetic outcome. The introduction of computer-guided implant placement has fundamentally changed this. This technology enables resources to be optimized through precise planning beforehand and simulation of treatment progress. The ATLANTIS ISUS angulated screw access fits this concept well. While the implant position remains the same, space can be optimized just by moving the screw channels, giving wide-reaching consequences for the final result.

Use of the ATLANTIS ISUS angulated screw access can allow a screw-retained prosthesis to be selected in numerous cases where otherwise the esthetical and functional outcome would not be ideal.

CASE STUDY BY:
ULI HAUSCHILD  SÉBASTIEN ROUSSET

FIG. 1A Angulated screw access.
FIG. 1B Straight screw channel.
FIG. 2 Initial clinical situation.
FIG. 3 Initial radiographic situation.
WHEN FABRICATING a titanium framework using CAD/CAM technology for a screw-retained prosthesis, the new ATLANTIS ISUS angulated screw access allows the screw access to be angled up to 30° to the implant axis. ATLANTIS ISUS uses a specific hexalobular screwdriver and screws that are identical to the originals except for the screwhead interface. This way you can transmit the screw force to the screw axis even when it is applied at an angle. Figure 1A illustrates how an implant screw in an angled channel can remain accessible when use of a straight screw channel (Fig. 1B) would not be feasible.

THE 41-YEAR-OLD patient had been edentulous in the maxilla since the age of 26 and wanted a fixed restoration with immediate restoration. There was no contraindication for an implant-supported prosthetic restoration. Figures 2 and 3 show the initial clinical and radiographic situation.

THE TREATMENT PLAN followed the computer-guided implant treatment criteria for fixed screw-retained bridges. After bite registration (Fig. 4), an esthetic try-in was made in the laboratory, and this was tried in the patient’s mouth. The dual scan prosthesis (Fig. 5)
was made on this basis. Data from the subsequent CT scan was transferred to the SIMPLANT software (DENTSPLY Implants), which simulated the definitive prosthetic tooth positions (Fig. 6).

**FIGURES 7 AND 8** show the analysis of the radiographs, which were viewable in slices, thus allowing for very accurate analysis of the bone situation at the planned implant site. Although the patient had good bone volume overall (Fig. 9), the width of the alveolar ridge below the sinus was not always sufficient (Figs. 7 and 8). The aim was to place 8 implants as parallel as possible. The bridge that would later be screw-retained would occupy the original position of the natural teeth.

The dual scan prosthesis was superimposed (matched) with the data obtained from the CT scan in the SIMPLANT software to determine the most optimal implant position. The natural gingival margin was also taken into account (Fig 10). Guided by the desired prosthetic result, the dentist also selected the implant positions with the aim of optimizing the esthetic result (Fig. 11).

**THE POSITIONS OF** the ANKYLOS implants (DENTSPLY Implants) were planned using the SIMPLANT software and calculated so that the implant axes would be as straight as possible. Balance Base abutments (DENTSPLY Implants) were selected, and the SIMPLANT Guide (Fig. 12) was ordered.

The Immediate Smile digital enabled further processing of the planning (Fig. 13) and fabrication of a temporary bridge (Figs. 14-16). While the SIMPLANT Guide was being fabricated, the laboratory used the Immediate Smile digital to mill a 3D model that simulates the positions of the gingiva and abutments (Fig. 15). The temporary prosthesis (Fig. 16) was fabricated on this model. To allow for immediate loading and ensure splinting of the implants, this temporary prosthesis consisted of a metal framework and was veneered with composite.

**AT THE START** of the procedure, the SIMPLANT Guide was positioned on the gingiva and secured with four fixation screws (Fig. 17). The eight ANKYLOS implants (all 3.5 mm in diameter and either 8 or 11 mm long) were placed according to the manufacturer’s recommendations (Fig. 18). After removing the guide, primary stability was checked and improved if necessary. The placement heads (Fig. 19) were removed, and the Balance Base abutments were selected according to the gingival thickness at each site (Fig. 20). Comparison of the previously produced simulation...
with the panoramic view following implant placement illustrates the precision of the procedure (Figs. 21 and 22).

THE TEMPORARY PROSTHESIS was made in a conventional manner and screwed in place (Fig. 23). The space did not allow for fabrication of a smaller temporary bridge. The patient found the teeth to be too large and the dental arch to be positioned too far out (Fig. 24). After three months, the temporary bridge was removed and osseointegration was checked. Transfer posts for the open tray technique were screwed into the implants, and the impression was taken (Figs. 25 and 26). A master cast with gingival mask was then made and scanned (Figs. 27 and 28). To correct the dental arch and tooth shape, the definitive tooth set-up was checked in an esthetic try-in to create an optimal basis for when designing the final framework (Fig. 29).

To improve the esthetics, the ATLANTIS ISUS angulated screw access was used when designing the definitive restoration. As described above, this feature allows access to the implant screw even when the screw access is angulated. In the present case, this meant optimization of the space in the tooth set-up angle. Figure 30 shows the straight screw channel, which was previously in the incisal margin of the front tooth. The arch could be made smaller in the posterior region as the screw channels there could be displaced into the center of the masticatory surfaces. As a result, the definitive restoration achieved better results in terms of esthetics and function than that of the temporary restoration, although the implant positions remained the same. Figures 31 to 34 illustrate the computer-aided design with 3D software at DENTSPLY Implants’ production facility.

The definitive titanium framework was modeled in the software and then milled (Figs. 35 to 39). The framework was then veneered with composite and completed (Fig. 40).
FIG. 44 Frontal view of the final restoration.

CONCLUSION. The ATLANTIS ISUS angulated screw access increases the esthetic and functional options by enabling displacement of screw channels for screw-retained implant-supported bridges (Figs. 41 and 42). DENTSPLY Implants now offers access to the screws for prosthetic restoration that can be requested up to 30° of the implant axis. Figure 43 shows epicrestal placement of the eight ANKYLOS implants. By using ATLANTIS ISUS angulated screw access the possibilities for when a screw-retained implant bridge can be used increases. It fits the computer-guided implantology principle perfectly and is thereby further optimizing resources (Fig. 44).

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References
Sinus floor elevation with new biphasic bone graft material

CASE STUDY

A 73-YEAR-OLD MAN who was missing teeth in the maxilla presented with periodontal disease. The patient was not happy with his oral status, as he felt that several mandibular teeth were mobile, as was tooth 25. He wished to have a permanent fixed prosthetic reconstruction. Function was a priority. The patient had never had regular dental hygienist treatments before coming to the clinic.

The OPG and CBCT showed severe bone resorption at sites 26–27, due to the missing teeth. Tooth 25 required extraction due to poor periodontal status. The patient requested to keep tooth 28.

After 6 months of socket healing (Fig. 1) and periodontal treatment, a lateral sinus lift procedure was scheduled, along with simultaneous placement of implants in positions 25 and 26.

DURING THE SURGERY, a SYMBIOS Collagen Membrane Slow Resorbable (SR) was hydrated in sterile saline (Fig. 2). This made it soft and pliable, yet stable, facilitating optimal handling and application.

After incision and flap elevation, a bone scraper was used to collect blood and autologous bone from position 26 (Fig. 3). Next, a round bur was carefully used to open a window to get access to the Schneiderian membrane (Fig. 4). To protect the membrane, a sterile gauze pad was placed temporarily between the membrane and the sinus floor (Fig. 5). A SYMBIOS Biphasic Bone Graft Material mixed with the patient’s blood and collected autologous bone was used for grafting (Fig. 6). A SYMBIOS Collagen Membrane SR was placed in saline to facilitate handling (Fig. 7).

The OPG showed severe bone resorption in sites 26–27 (Fig. 8). The preparation of the cortical bone (Fig. 9) and the conical preparation (Fig. 10) were carried out for the implants to be placed at sites 25 and 26.

SUMMARY

PATIENT: A 73-year-old male patient with missing teeth in positions 25 to 27 was asking for a fixed dental restoration.

CHALLENGE: Severe bone resorption was seen in the area of the missing teeth. The original therapeutic plan was to extract tooth 28, place implants in positions 25 and 27, and fabricate a 3-unit bridge. However, the patient adamantly resisted removal of tooth 28. In order to avoid putting the most posterior implant at risk, it was placed in a more anterior position, and a prosthesis for sites 25 to 26 will be constructed. If tooth 28 later must be extracted, the patient will still have stable bilateral occlusion.

TREATMENT: Because of the severe periodontal compromise, tooth 25 was extracted, and after six months healing and general periodontal treatment, a lateral sinus lift was performed. At the same visit, two OsseoSpeed EV implants were placed in positions 25 and 26.

CASE STUDY BY:

LARS-MAGNUS ALMGREN
Sinus floor elevation with new biphasic bone graft material

FIG. 11 The SYMBIOS Biphasic Bone Graft Material mixture was placed.

FIG. 12 OsseoSpeed EV 4.8 C, 9 mm implant (ASTRA TECH Implant System) mounted on the implant driver for placement in position 26.

FIG. 13 A torque wrench was used to tighten the implant placed in position 26.

FIG. 14 OsseoSpeed EV implants installed in position 25 and 26.

FIG. 15 Cover screws in place.

FIG. 16 Additional SYMBIOS Biphasic Bone Graft Material mixture placed around the implant in position 26.

FIG. 17 The presoaked SYMBIOS Collagen Membrane SR placed over the window.

FIG. 18 Full soft-tissue closure with sutures.

FIG. 19 Periapical x-ray 1 month after surgery.

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a bony window and get access to the Schneiderian membrane (Fig. 4), after which the membrane was gently lifted from the sinus floor (Fig. 5). To protect the membrane from rupture, a sterile gauze pad was temporarily placed between the membrane and the sinus floor (Fig. 6).

The sites 25 and 26 were prepared for implant placement, according to the manufacturer’s drilling protocol (Figs. 7 to 9). SYMBIOS Biphasic Bone Graft Material was mixed with the patient’s blood together with collected autogenous bone to improve bone regeneration through the coagulum. The stickiness of this blended mix facilitates handling (Fig. 10). Before implant placement, the SYMBIOS Biphasic Bone Graft Material mixture was placed in the sinus (Fig. 11).

IN POSITION 25, an OsseoSpeed EV 4.2 S, 8 mm implant (ASTRA TECH Implant System) was placed in the healed crest, and a cover screw was attached. In position 26, an OsseoSpeed EV 4.8 C, 9 mm implant was placed using a torque wrench to give the surgeon better control. A cover screw was attached, and additional SYMBIOS Biphasic Bone Graft Material mixture was placed around the implant, filling the prepared sinus lift site (Figs. 12 to 16).

The presoaked and trimmed SYMBIOS Collagen Membrane SR was placed over the window. Because the membrane adapted fully to the underlying bone, there was no need to secure it in any other way. The flap was trimmed and placed back in position for suturing (Fig. 17). A full soft-tissue closure was performed (Fig. 18), and the patient was sent home with a 10-day antibiotic prescription.

NO POST-SURGICAL complications occurred. One month after surgery, periapical x-rays were taken (Fig. 19). No signs of pathology were observed.

Three months after the surgery, the patient was very motivated to attend his regular hygienist visits and displayed excellent periodontal results. The next step will be a 6-month follow-up with x-rays, followed by the final screw-retained fixed partial prosthetic restoration.

PRODUCTS USED:

ASTRA TECH IMPLANT SYSTEM
SYMBIOS®
Thinking backwards—digital workflow using SIMPLANT

SUMMARY
PATIENT: A 50-year old male patient missing tooth 26 asked for an implant-supported crown.

CHALLENGE: The patient wished to combine implant placement and insertion of a provisional crown in only one treatment session.

TREATMENT: Using a CBCT scan of the clinical situation imported into the SIMPLANT software, a customized ATLANTIS Abutment as well as a provisional crown and a surgical guide were fabricated before surgery. On the day of implant placement, the abutment and provisional crown were incorporated, following the Immediate Smile concept.

CASE STUDY BY:
CHRISTIAN MERTENS

PLANNING FOR DENTAL implants starting from the desired crown position (backward planning) has been an intrinsic part of implant therapy for years and is implemented successfully by many treatment teams. This case presents a treatment protocol in which the advantages of backward planning were realized using SIMPLANT computer-guided treatment planning with the new ASTRA TECH Implant System EV. By eliminating analog working steps and moving to exclusively digital planning and production of all prosthetic components, new and greatly simplified technical solutions can be developed prior to the actual implant placement.

PRECISE AND CAREFUL PLANNING of each individual implant position in light of prosthetic considerations is an essential requirement for the surgical and prosthetic success of implant therapy. Today, modern implant-related concepts are only regarded successful when the prosthesis satisfies current esthetic demands. So-called backward planning can be used to determine the implant choice and position. This requires three-dimensional planning and implementation of the obtained information (by means of CBCT/CT, digital set-up) in an implant-planning program in which all the data can ideally be combined. SIMPLANT from DENTSPLY Implants is one such program. Not only does it make it possible to plan the implant position, taking prosthetic guidelines into account, but it also offers an interface for prosthetic restoration with ATLANTIS. This makes a digital workflow and the resulting advantages possible and feasible in the ordinary practice.

FIG. 1 When determining the ideal prosthetic implant position, the virtual set-up acted as specification.

FIG. 2 The design for the drill template to be made using stereolithography (SIMPLANT).

FIG. 3 The construction proposal for the patient’s custom ATLANTIS abutment can be assessed in various views.

FIG. 4 Check of function.

FIG. 5 Tooth placed virtually in the gap.

FIG. 6 The prefabricated titanium abutment with the composite crown for temporary restoration.

FIG. 7 Piercing the soft tissue.

FIG. 8 Predrilling with the initial drill, thus reducing the pressure in the bone around the implant shoulder.

FIG. 9 Preparation with the EV/GS no. 1 drill.

FIG. 10 Extending the preparation with the EV/GS no. 3 drill.
with ASTRA TECH Implant System EV

INITIAL SITUATION. The patient wished to restore the tooth that was missing in position 26. Presented with treatment options, he declined a conventional bridge on account of the invasive procedure that would be required on the adjacent teeth. Instead he opted for an implant-supported prosthesis with an ATLANTIS Abutment (DENTSPLY Implants), delivered following the Immediate Smile concept. After guided placement of the implant and achievement of primary stability, the treatment plan called for immediate placement of a custom abutment and temporary crown. The patient was thereby managed adequately in only one treatment session.

An impression was taken of the initial situation, and the models were digitized using a conventional laboratory scanner. Volumetric computerized tomography (CBCT) was also employed. Besides clinical assessment of the initial situation, radiographic diagnostics to evaluate bone structure, bone quantity, and the status of neighboring anatomic structures should be included in such planning.

IMPLANT PLANNING IN SIMPLANT. With a few steps, the patient’s case was then entered in SIMPLANT. The CBCT data were imported first. Next the STL data of the model and digital wax-up was loaded. The SIMPLANT software is an open solution that can be used with all DICOM-compatible (CB)CT scanners and conventional STL-compatible laboratory scanners or intraoral scanners. The superimposed data shows an exact picture of the anatomic and prosthetic situation. The bone surface was displayed by the software in a different color from the surface of the model (teeth and soft tissue) (Fig. 1). Prior to implant planning a digital wax-up was created in the 3Shape software. To do this, the corresponding tooth was selected from a tooth library and positioned in the gap. The tooth was adjusted to the available space in a few steps. The implant was virtually positioned in the bone with reference to the available bone and anticipated occlusal loads and the ideal length, diameter, and position for the implant were defined, taking the specification of the prosthesis into account. More than 100 implant systems are stored in the SIMPLANT software library; in this case it was decided to use the new ASTRA TECH Implant System EV (DENTSPLY Implants), which meets the demands of modern implant dentistry with its simplified surgical and prosthetic protocol. Prosthetic restoration with patient-specific ATLANTIS abutments has been greatly simplified by the innovative connection design (one position only). The individually fabricated ATLANTIS Abutment for the ASTRA TECH Implant System EV is only placed in a single position. A malposition abutment...
is thus a thing of the past. A tooth-supported SIMPLANT SAFE Guide was ordered in the SIMPLANT software (Fig. 2) and the Immediate Smile featuring ATLANTIS Abutment option was chosen. In this fully digital workflow, the SIMPLANT plan is used to create the SIMPLANT Guide as well as an ATLANTIS Abutment. A design proposal of the abutment was sent to the treatment team, which can be loaded into SIMPLANT for review of the case, and modified if necessary using ATLANTIS 3D Editor (Fig. 3). After approval of the construction, CAM-supported fabrication of the abutment took place in the desired material; in this case, titanium.

FABRICATION OF THE TEMPORARY CROWN. In the ATLANTIS WebOrder, “dispatched” status appears after the abutment is ordered, indicating that the ATLANTIS Abutment Core File can be downloaded. The core file data correspond to an exact reproduction of the ATLANTIS Abutment and act as the basis for fabrication of the temporary crown. As the data are made available in an open format, it is possible to work with conventional CAD software and ordinary CAM technology (Figs. 4 and 5). To simplify the design process, the core file displays the abutment without a screw channel. On the outer surface of the planned abutment and in the region of the cervical margin, the file corresponds exactly to the actual abutment. Through an articulator integrated in the software, the lines of movement can be tracked and static and dynamic occlusion adjusted. Following construction, the temporary crown was fabricated by the dental laboratory from a high-quality composite using CAD/CAM (Fig. 6).

PLANNING THE SURGICAL PROCEDURE. The implant position and alignment as determined from the three-dimensional data must be transferred to the patient during the surgery. Drilling of the implant site should correspond as accurately as possible to the position previously simulated in the software. To ensure this, a drilling template (SIMPLANT SAFE Guide) and necessary drills were ordered in the SIMPLANT online shop as described previously. This innovation of ordering all drilling components together with the template, based on the planning, facilitates implant placement enormously. The dentist receives a list of drills required, and they can be deselected if the dentist has already received them for use in a previous case. In the present case, only the sleeves needed for the individual patient were required.

After being ordered, the template was fabricated by stereolithography (a type of 3D printing) in the SIMPLANT production site.

PLACEMENT OF THE IMPLANT with gradual preparation of the bone cavity. Prior to the surgical procedure, the drill template, the individual set of drills and drill protocol, the patient’s custom abutment, and the temporary crown were all at hand so that, assuming primary stability was achieved, immediate restoration with the definitive abutment and temporary could take place. All components were disinfected, and the patient was given local anesthesia. The drill template was fixed securely on the neighboring teeth, and the soft tissue was first pierced with a tissue punch so that the implant could be placed without creating a flap (Fig. 7). The next step was introduction of the initial drill. This removed the previously pierced soft tissue fully and ensured exact predrilling as the tip of this drill is designed to avoid drifting off course even when it meets an oblique bone level (Fig. 8). When drilling into the bone, the maximum speed of 1,500 rpm was not exceeded, and saline solution was used for external cooling. Bone heating can be avoided, and a pump effect to remove bone tissue efficiently can be generated by an intermittent drilling technique. The evolution of the new system is also apparent in the sharpness of the drills. The very dense bone in this case, where immediate restoration was planned, could be prepared without pressure and therefore without any risk of bone necrosis.

Preparation was continued with ASTRATECH Implant System EV/GS no. 1 and no. 3 drills. These have a depth stop that prevents too deep drilling preparation, and they can be used for preparation of two different implant lengths. This is enabled by positioning the sleeve at a different height or depth in the template, depending on the implant length (Figs. 9 and 10). The conical A/B drill is then used to prepare the bone
in the crestal region. This drill does not have a depth stop like the other instruments but has laser markings on the shaft. The surgeon can thus use the bone quality to control the desired preparation depth (Fig. 11).

**THE COMPLETELY REDESIGNED** surgical tray leads intuitively through the sequence of drills and comprises all the information necessary for using the components. During implant placement, it is ensured that the depth markings on the placement instrument are at the same level with the Safe Guide in accordance with the implant lengths. Since an ATLANTIS Abutment produced prior to the surgical procedure was used in this case, a further unique feature should be noted: the placement instrument has six cams, one of which is bigger and deeper than the other five; this cam must be exactly in line with the groove in the guide. This guarantees correct alignment of the implant, which ensures one-position-only placement of the abutment and thus an exact fit of the abutment and temporary crown (Fig. 12). This unique interplay of hardware and software enables use of the Immediate Smile concept for single-tooth restorations, distinguishing SIMPLANT from other guided surgery systems (Figs. 13 and 14).

After taking a control radiograph, the temporary crown was connected to the abutment. The course of the actual treatment session was very structured and straightforward because of the precise preliminary work and template-guided implant placement. The patient left the office with an immediate implant-supported restoration (Fig. 15).

**CONCLUSION.** For backward planning, with specification of the prosthetic objective to implant positioning, digital possibilities are increasingly an asset for the treatment team. These include guided implant placement, which ensures efficient and precise implementation of the planning. With innovative treatment concepts such as the Immediate Smile concept and ATLANTIS Abutment, the digital planning components can be combined in one project file. Only one data set is needed, from the virtual elaboration of the set-up through three-dimensional diagnosis of the available bone and planning of the implant position to construction of the patient’s custom abutment and CAD/CAM fabrication of the temporary restoration. Due to the template-guided implant placement and gradual preparation of the implant bed, the implant position that was planned three-dimensionally can be transferred precisely to the mouth with relatively little effort. If the necessary primary stability is achieved, immediate restoration can be carried out with a patient-specific abutment (ATLANTIS) and temporary crown. This results in a simplified procedure for implant-based immediate restoration of a single-tooth gap. Backward planning using coordinated hardware and software is an important part of implant-based treatment concepts in daily work, enabling the primary benefit of immediate restoration—a significant shortening of treatment time—to be optimally exploited.

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Functional hard and soft tissue preservation in the sloped alveolar ridge

SUMMARY

PATIENT: A 53-year-old woman presented with missing tooth 46. The alveolar ridge height at the site was uneven, sloping in a buccal direction by approximately 2 mm. The interdental papillae at tooth 45 and at tooth 47 were only marginally filled.

CHALLENGE: To retain the hard and soft tissue structures around the implant to the greatest extent possible. In order to reduce the risk of progressive vertical and horizontal alveolar ridge atrophy and subsequent loss of the papillae, an OsseoSpeed Profile (ASTRA TECH Implant System) was selected, with the expectation that its sloped implant design would optimally support the anatomical structures.

TREATMENT: After measuring the lingual and buccal preparation depth, an OsseoSpeed Profile was inserted. Final alignment of the sloped implant shoulder was carried out using the specially marked implant driver to ensure that the implant was placed flush to the bone. This allowed the marginal bone around the implant to be optimally supported. After approximately four months, the peri-implant mucosa was healed without irritation.

After making a final impression with a Profile Impression component, a TiDesign Profile Abutment (DENTSPLY Implants) was customized in the laboratory, and a metal ceramic crown was fabricated. About five months after implant placement, the ceramic veneered crown was cemented.

CASE STUDY

ADAPTING TO THE ANATOMICAL SITUATION USING A SLOPED IMPLANT DESIGN. Long-term clinical and esthetic success of implant therapy can only be achieved if peri-implant hard and soft tissue structures are preserved to the greatest extent possible. Bone resorption after tooth loss in the posterior region can occur in oro-vestibular as well as in mesio-distal direction. In both cases the OsseoSpeed Profile implant (DENTSPLY Implants) is adapted to the anatomical situation because of its sloped implant design.

The primary objective of implant therapy is to achieve lasting functional and esthetic success with minimal risk and without complications. As a result of tooth extraction or loss, however, horizontal and vertical resorption occurs. Horizontal resorption starts at the thinner alveolar outer walls. Vertical bone resorption is characterized by being more pronounced buccally than lingually, which can lead to a difference of up to two millimeters from the lingual to the buccal bone lamella.1

FIG. 1A Not providing support to the lingual bone leads to its resorption.

FIG. 1B Risk of discoloration or necessitating augmentation.

FIG. 2 The height of the slope from the lingual to buccal side varies between 1.5 and 1.7 mm, depending on the design and diameter of the implant.

FIG. 3 The DTV images show the sloped atrophied alveolar ridge in region 46.

FIG. 4A–4B Clinical images taken before implant placement show the pronounced buccal and slight lingual resorption of the alveolar ridge.

FIG. 5 After crestal incision and elevation of a mucoperiosteal flap, the atrophied alveolar ridge is clearly visible.

FIG. 6 The buccally insufficient ridge width caused a bone dehiscence.

FIG. 8A Ø 4,5 Ø 5,0 Ø 5,0 S 1,5 mm 1,6 mm 1,7 mm
ANATOMICALLY SHAPED IMPLANT SHOULDER.
When bone loss occurs, conventionally designed implants with flat implant shoulders can only partially support the peri-implant structures. This can result in discoloration of the buccal soft tissue margin or the unsupported bone may be resorbed (Fig. 1).

In order to avoid such undesirable consequences, OsseoSpeed Profile was developed. The OsseoSpeed Profile implant is supported by the Astra Tech Implant System BioManagement Complex: OsseoSpeed, MicroThread, Conical Seal Design and Connective Contour. The implant is available in different lengths and diameters. As a result of its construction, the anatomical features of the alveolar ridge can be followed and surgical adjustments to the ridge can be avoided (Fig. 2).

CIRCUMFERENTIAL RETENTION OF THE MARGINAL BONE.
The OsseoSpeed Profile design provides bone support circumferentially, thus preserving the marginal bone and promoting the development of healthy peri-implant soft tissue. Because of its ability to preserve the bone lingually, buccally and approximally, the implant type is suitable in compromised molar regions with typically lingually sloped bone.

The importance of maintaining the marginal bone level was demonstrated by Tarnow, who showed that the presence or absence of a papilla largely depends on the distance from the bone level to the proximal contact point of the crown. An increase of the distance from the contact point to the bone level from 5 mm to 6 mm reduces the probability of a papilla presence from nearly 100 % to 56 %. Bone resorption of only one millimeter can thus suppress the development of the papilla.

The following case shows that the vertical and horizontal atrophy of the jaw and the disappearance of the papillae could be countered successfully by using the OsseoSpeed Profile.

CLINICAL AND RADIOGRAPHIC EXAMINATION. Cone beam tomography (CBCT) was used for the planning of the case. The CBCT image showed that region 46 had a bone level difference of about 2 mm and sufficient bone height above the inferior alveolar nerve. The ridge width and height were sufficient to place an implant with a 4.5 mm diameter and a 13 mm length. The interproximal papillae distal to tooth 45 and mesial to tooth 47 were reduced in height. Tooth 47 was clinically healthy. The endodontically treated tooth 45 had enamel defects, and improvement of its esthetics with composite was planned for (Figs. 3 and 4).

SURGICAL WORKFLOW. After a crestal and intrasulcular incision, a mucoperiosteal flap was elevated, revealing...
the sloped ridge. After marking the implant position about 2 mm buccally to the highest lingual jaw ridge, the initial preparation of the implant site was done using a surgical template, in accordance with the manufacturer’s protocol. During the pilot drilling, the implant axial alignment was monitored with paralleling tools. The correct drilling depth was measured with an implant depth gauge at the bone walls. Initial insertion of the OsseoSpeed Profile was performed using the contra angle. However, the final alignment of the sloped implant shoulder must be performed manually using a specially marked implant driver. It enables the sloped implant shoulder to be aligned with the bone within a fraction of a millimeter. The marginal bone around the implant can thus be optimally supported. Following placement of the implant-specific Healing Abutment Uni (DENTSPLY Implants), the soft tissue was sutured (Figs. 5 and 6).

The patient was recommended soft and liquid foods and to avoid chewing on the implant. After approximately four months, the peri-implant mucosa had healed without complications. During the healing phase, the defects of tooth 45 were esthetically corrected with dental composite in order to facilitate the future provision of a crown (Figs. 7A to C). For the purposes of this case presentation, re-entry was carried out to inspect the marginal bone. Even without an augmentation of the dehiscence defect, bone regeneration had developed to the level of the buccal implant neck. After the re-entry procedure, the Healing Abutment Uni was re-inserted, and the soft tissue was sutured (Figs. 8A and B).

FABRICATION OF THE CROWN. Two weeks later, the process of fabricating the implant restoration began (Figs. 9A and B). When using the OsseoSpeed TX Profile implant, specific prosthetic components must be used. The use of a titanium abutment is recommended in the posterior region with heavy occlusal load and little esthetic requirements. It provides stability, while having no limiting effects esthetically. For best results, the prefabricated TiDesign Profile titanium abutment was individualized in the laboratory to optimize the emergence profile and the progression of the marginal gingiva. When cementing porcelain-fused metal crown (PFM), care was taken to ensure that all cement residues were thoroughly removed (Figs. 10 to 12).

FOLLOW-UP. Clinical and radiological images were taken one, two, and three years after implant placement...
and demonstrated the good clinical results of using the OsseoSpeed Profile implant. The interdependent features of the ASTRA TECH Implant System BioManagement Complex together with the sloped implant neck worked to preserve the peri-implant tissues. No bone remodeling was observed, with the buccal and interproximal bone levels remaining stable at the level of the implant shoulder. Furthermore, the mesial and distal interdental papillae regenerated, and an inflammation-free, keratinized peri-implant mucosa developed around the implant crown (Figs. 13 to 15C).

DISCUSSION. The criterion for successful implant therapy is the preservation of the peri-implant bone-level. It is of significant prognostic importance.

CONCLUSION. The OsseoSpeed Profile implant, can enable favorable esthetic and functional results, not only in the esthetic zone but also in the atrophied alveolar ridge and even without augmentation procedures.

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OSSEOSPEED PROFILE EV
The second generation of the unique OsseoSpeed Profile implant is an integral part of the new ASTRA TECH Implant System EV, incorporating all of its simplicity and design principles.

The OsseoSpeed Profile EV implant assortment has been upgraded for added simplicity and versatility.

- New implant diameters: 4.2 mm and 4.8 mm
- New shorter 8 mm length available
- One-position-only implant driver for ensured accuracy

In addition, the new OsseoSpeed Profile EV is fully supported by the SIMPLANT computer guided treatment concept.

The restorative assortment has been designed to ensure a simple and predictable workflow from implant placement to the connection of the final abutment, featuring:

- self-guiding impression components for an accurate workflow between clinician and laboratory,
- one-position-only placement of all indexed components for a simple restorative procedure, and
- increased range of treatment options including options for screw- and attachment retained cases.

Read more about OsseoSpeed Profile EV at www.jointheev.com

References
PATIENT-SPECIFIC SUPRASTRUCTURES ON TRANSGINGIVAL XIVE IMPLANTS

High precision and versatility

With an ATLANTIS ISUS implant suprastructure on XiVE TG implants, it is possible to utilize all the benefits of a patient-specific restoration beyond CAD/CAM and gain cost-effectiveness. The transgingival implant design eliminates the need for additional abutments, and the one-stage surgical procedure is time-saving and comfortable for the patient. Due to the transgingival design of the implant, additional abutments are no longer necessary. The solution also provides the option of temporary immediate restoration using the adapted existing prosthesis on the day of surgery.

Easy to use
With ActiveBoneControl, the intelligent interaction of an innovative implant thread design and the surgical preparation technique, XiVE TG is reliable even in cases with unfavorable bone structure. The prosthetic restoration for XiVE TG also allows the clinician to choose between an ATLANTIS ISUS patient-specific implant suprastructure for a fixed or a removable dental implant prosthesis.

The XiVE Implant system has been clinically tested and scientifically documented, and is used in clinics and practices daily.
Precise and reliable abutment placement
FOR CEMENT-RETAINED RESTORATIONS

The ATLANTIS Abutment Insertion Guide is a precisely-crafted, 3D-printed device that ensures the accuracy of ATLANTIS Abutment orientation and installation for single- and multiple-unit, cement-retained restorations on all major implant systems.

- ATLANTIS Abutment scan data is used to create the insertion guide for a perfect design and fit.
- Designed to accurately match the abutment margin, to avoid soft tissue interference during installation.
- Designed with an oriented access channel for easy location of the screw access hole and insertion of the abutment screw.

Introducing SIMPLANT® 17

The SIMPLANT 17 implant relations calculator shows important planned implant relations, such as the distances between implants, vertical heights of implants and implant inclination compared to the desired insertion direction. Multiple implants can be moved and rotated as a group, making it easy to plan according to your design preferences.

- Refined implant movements help you decide whether to work on straight or angled abutments when requesting a suprastructure from the dental laboratory.
- Clear communication of surgical and prosthetic needs.
- When multiple implants can be aligned, it becomes easier to place restorative components such as abutments or a screw-retained restoration.
Promoting bone formation and stability

As part of the SYMBIOS Regenerative Solutions portfolio, DENTSPLY Implants introduces two new products for all countries accepting the CE mark: the SYMBIOS Biphasic Bone Graft Material (BGM) and the SYMBIOS Collagen Membrane SR (slow resorbable).

SYMBIOS Regenerative Solutions offers a comprehensive range of products for bone augmentation and periodontal procedures designed to promote bone formation and stability as a crucial base for dental implant treatments.

Two new products are now available in the market: the SYMBIOS Biphasic Bone Graft Material (BGM) and the SYMBIOS Collagen Membrane SR (slow resorbable).

For defects affecting the bone quantity of patients, bone graft material can help to create new bone or remodel existing ridges. The SYMBIOS Biphasic BGM is a resorbable bone graft material derived from red marine algae. It consists of a composition of 20% hydroxyapatite and 80% tricalciumphosphate in granular form. Due to the high tricalciumphosphate content of the product, it resorbs significantly faster than pure hydroxyapatite. SYMBIOS Biphasic BGM can be used for reconstruction of bony defects in maxillofacial surgery and augmentations in implant dentistry.

The new bone graft material offers several benefits and features:

- **Osteoconductive:** Bone analogous properties and interconnecting pores.
- **Resorption kinetics in the sense of restitutio ad integrum:** Material degradation and bone remodeling/healing are balanced. Resorbs almost completely.
- **Volume stability:** The resorption properties enable volume stability during bone formation.
- **Straightforward application:** Saturation with patient’s blood and addition of autogenous bone chips improve healing.

With the SYMBIOS Collagen Membrane SR, DENTSPLY Implants introduces a slow resorbable collagen membrane. Resorbable membranes are designed to be absorbed, eliminating the need for surgical removal. Derived from highly-purified type I bovine Achilles tendon, the collagen tissue matrix provides a GBR barrier function for 26 to 38 weeks. The membrane functions as a barrier, aiding in wound healing after dental surgery in cases with a dental implant, a bone defect or ridge reconstruction. Fiber matrix construction allows tissue integration, while preventing direct passage of bacteria and epithelial cells.

The main benefits and features include:

- **Osteoconductive:** SYMBIOS Collagen Membrane SR is available in three different sizes.
- **Safe for the patient:** Manufactured from highly purified type I bovine Achilles tendon.
- **Prevents epithelial downgrowth:** Cell occlusive.
- **Possibility to suture or tack the membrane in place without tearing:** Unique fiber orientation provides high tensile strength.
- **Stiff enough for easy placement, yet easily drapes over ridge:** Optimized flexibility. Can be placed either dry or hydrated.
Fredrik Ceder, Senior Manager Global Clinical Research at DENTSPLY Implants, is responsible for the company-initiated clinical studies program. This is one of DENTSPLY Implants’ core operations and a part of the foundation for successful and safe product development. The investments in the Chinese market in recent years have accounted for much of Fredrik’s time.

**“We are really proud of this operation.”**

**HOW MANY PEOPLE WORK WITH CLINICAL STUDIES AT DENTSPLY IMPLANTS?**

“At the present moment, there are about 15 of us working full-time with the clinical studies program. Having said that, most of our clinical studies are based at, and performed in cooperation with, clinics and universities all over the world.”

**HOW IS A CLINICAL STUDY RUN?**

“We have two types of clinical studies—the company-initiated studies (CIS) and the investigator-initiated studies (IIS). A company-initiated study may be conducted ahead of a product launch or as follow-up of products already in the market. The way the study is carried out is usually determined in close cooperation with a clinician at a university, invited to serve as a coordinating investigator. After that, we contact several clinics all over the world and invite them to participate. Such studies usually run for three to five years and we have about 20 or so studies running in parallel. We start up two new studies annually. In addition to the company-initiated clinical studies, we receive around 100 external study proposals every year from clinicians around the world. Within the investigator-initiated studies program, we approve and partially support 35% of the incoming proposals. We currently have approximately 180 such studies ongoing. We’re really proud of this operation. The company’s goal is to always deliver safe and reliable products to clinicians and their patients; our clinical research program is a foundation for this. We need clinical documentation to ensure that we are trustworthy in our communication, because at the end of the day, it’s all about the patient’s quality of life.”

**CAN YOU TELL US A LITTLE ABOUT THE CLINICAL STUDIES PROGRAM IN CHINA?**

“When we introduced the ASTRA TECH Implant System in China, we also wanted to have local clinical studies in place. So in 2011, we started no less than five clinical studies in cooperation with 15 clinics in various parts of mainland China. The results so far are good and fully in line with our high expectations. As of today, one scientific article from the studies has been published and we will present results from additional studies at the EAO meeting in Stockholm, Sweden, in 2015.”

**HOW ARE YOU BEING RECEIVED IN CHINA?**

“Very well, I must say—our collaboration works smoothly, it seems like our efforts are appreciated and that our investments in local clinical studies are well received. My impression is that we learn a lot from each other. China is an enormous country, and the logistics at hospitals and dental clinics are impressive. I was at one clinic at a big hospital which has close to 4,000,000 patient visits annually, and in the dental clinic, they have 1,000 patients every day, year-round. To find 225 eligible study patients for our five studies at the participating study centers was not a problem, and patients’ willingness to participate has been high. As you can see, expanding our clinical research program into Asia, and into China in particular, makes me feel really good.”
A thriving, modern practice that is flooded with light, with a waiting area in the winter garden, three dentists, a motivated team and a solid patient base—what more could you wish for? The Maday practice in Viernheim, Germany, wanted more. They decided to work with the STEPPS team to make things happen.

Developing the next generation

The biggest change is neither sudden nor surprising. The Maday practice faces a change of generations—Dr. Maday Sr. is about to hand over the practice to his son. With the new generation comes an expanding range of services offered, given the fact that implant dentistry has gained ground in recent years. The practice has subtly evolved into an implant practice. But it has been such an unnoticeable change that only a few long-term patients have noticed it. Faced with this situation, Dr. Wolfgang Maday and dentists Dirk Maday and Melanie Kaul turned to STEPPS for help.

ALL GOOD ADVICE starts with listening, as well as a comprehensive analysis of the current situation: What is the external perception of the practice? How does the practice communicate? What does it look like on the Internet? How are the doctors reviewed online? What are the strengths and weaknesses of the practice? What does the current patient structure look like? How big is the target area of the practice? Where can most patients be reached?

This CPM Analysis (Customer Profile Measurement) formed the basis for further planning in the Maday case. From this, the regional patient potential for the practice could be very precisely determined (an explanation of the CPM analysis is found in the box below). The Online Marketing Potential Analysis showed that further solutions should include Google optimization of the website and a better Internet reputation with an active management evaluation.

NOT EVEN A PRACTICE can avoid getting older. Dr. Wolfgang Maday realized early on that marketing is critical to success. In addition to running a practice with designed, high-quality rooms, a corporate logotype was developed and an informative website launched years ago. However, the profile of the practice is facing a great challenge. The practice is a generation younger and its focus is clearly on implant dentistry. And the business environment is not the same as it was just a few years ago. Competing practices are active and professional online, as this has opened up new ways to communicate. The recommendation was: don’t go for a full makeover—do a facelift, with the goal clearly defined: a notably younger and more dynamic profile that radiates high implant dentistry competence.

THE STEPPS MANUFACTURE made the modifications of the corporate design. They offer a wide variety of prepared, high-quality designs that take care of...
everything from business cards to the web site. Their specialty is to design and produce tailor-made material to fit the needs and strategic goals of each individual practice. Using experienced consultants and designers, with thorough dental know-how, the chosen measures are quickly produced, with very good investment value.

The images of the practice, taken by a professional, STEPPS photographer, speak for themselves. Today, these images and the selected design are the framework for all communication coming from the practice.

And with the new, search engine optimized website (zahnarztpraxis-viernheim.de), the Maday and Kaul practice gets many of their first visits online.

“The cooperation with STEPPS turned out very positive. The design changes are set and ready to be implemented. And, as soon as we see the effect of the first actions and events, we will look forward to the next steps. These should, more than anything, contribute to a stronger relationship with our patients,” says Dirk Maday.

The STEPPS practice marketing program and the presented services are not available in all countries. For information, please contact your local DENTSPLY Implants representative.
Tuesday, April 24, 2012, was a day like any other. Rebecca Bender had just gotten out of work. She made her way through the familiar streets of New York City to head back home. However, what happened seconds after she stepped off the sidewalk that evening would forever change her life. “For a long time after the accident, I would never have been able to imagine that my life could be as great as it is today,” says Rebecca. “The experience was traumatic. But it has also taught me to value more the things in life.”

“I can smile today thanks

At 29, Rebecca Bender’s life consisted of the support of a loving family, a busy social life with a circle of close friends, and helping those suffering from mental illness as a social worker. She lived a healthy lifestyle and sometimes bartended in the evenings. In fact, she was bartending when she met her boyfriend, Charles. Overall, it was a happy and carefree life that many could only wish for.

On April 24, only 23 days after she started dating Charles, Rebecca’s life changed forever when she was struck by a motorcyclist who ran through a red light. “At that moment, she accelerated from zero to flying through the air—it was in the blink of an eye. She was sent head over heels in a loop and landed face down in the street,” says Larry B., a witness to the accident. As a Bostonian visiting New York City, Larry was not only the person who watched the events unfold, but also the one who rushed to Rebecca’s side and held her hand until the emergency medical services arrived on the scene. To this day, they remain close friends.

As a result of the impact, Rebecca suffered a concussion, torn meniscus in her knee, and worst of all, trauma to her buccal bone plate which caused permanent damage to her front teeth. “I knew as soon as I hit the ground that I had lost a good part of my mouth and teeth,” says Rebecca. “The months following the accident were filled with constant pain and depression. I could not work, walk or drive. I was such an active person, so to suddenly not be able to exercise or go out with friends was extremely difficult for me.”

Due to the significant trauma to the area, Rebecca first had her teeth stabilized with ortho wires. “When I was ready for further treatment, my dentist, Dr. Derek Faktor referred me to Dr. John Lupovici, a periodontist who is also a dental implant specialist. To this day, I remember vividly Dr. Lupovici saying to me, ‘I am going to be the doctor that you hate to see, but you will smile at the end.’” In August of 2012, Dr. Lupovici extracted four teeth, treated the site with regenerative materials and placed two implants. “Dr. Lupovici’s staff was so supportive and went out of their way to make everything easier for me. Dr. Lupovici even gave me his cell phone number so I could reach him any time I had a question or concern.”

During the surgical phase of treatment, Rebecca received a temporary bridge as an interim solution to fill the gap left by her missing teeth. “I felt so insecure with the temporary,” Rebecca states. “Not only could I not exercise, but I could not eat anything—not even a sandwich. It did not work for me. When I am performing psychiatric assessments, I need to be able to speak and smile with confidence during my sessions, but I was not able to do that because I was so nervous that my temporary would slip off. I found myself covering my

“I was so nervous that my temporary would slip off. I found myself covering my mouth every time I smiled. I was so traumatized by the sense of insecurity that I ended up in therapy for posttraumatic stress.”
mouth every time I smiled. I was so traumatized by the sense of insecurity that I ended up in therapy for posttraumatic stress.”

IN LATE 2013, REBECCA returned to Dr. Faktor to receive her cement-retained, fixed prosthesis on the two implants. “My new teeth are big, white and beautiful—and I love them! It took a little getting used to at the beginning because they felt just like my own teeth but I was still insecure from my experience with the loose temporaries. The first time I tried to eat an apple, I did so at home alone because I was so scared that my teeth would come out. When they stayed securely in place, I cried from relief and happiness. Having gone through this experience, I am now a better trauma therapist with my patients because I can genuinely understand where they are coming from. I am able to do all the things I enjoyed before the accident and I am so grateful for each day.” Rebecca concludes, “I would definitely recommend implants for anyone faced with tooth loss. If it were not for Drs. Faktor and Lupovici, and dental implants, I would not be smiling as I do today.”

REBECCA HAS A LOT TO SMILE ABOUT. In the three years since her accident, Rebecca’s boyfriend Charles has remained by her side and supported her each step of the way. They now live together on Staten Island and they are expecting their first child together later this year.
Welcome to the United Kingdom

The United Kingdom is one of the true world powers, but when it comes to implant dentistry it has long been the poor cousin. Today it is one of the fastest growing markets, but with many inclined to jump on the bandwagon comes many challenges.

While the market growth is a positive thing, Dr. Michael Norton, one of the world’s most renowned dental implant surgeons, has some concerns. He points to the issue regarding who is placing the implants, how general practice is taking over from specialist practice, and his concerns for unnecessary extractions and how much of the growth is in the low cost market segment, where the risk of mistakes and failures appears bigger.

WITH OVER TWENTY years in the business, which began with a background as an employee of Astra Tech and soon to be the first non-American President of the Academy of Osseointegration, Dr. Norton is an authority in the business. “It is very gratifying to make a difference in people’s lives, and really implant dentistry, and ASTRA TECH Implant System, is my life’s work,” says Dr. Norton. He continues by pointing to how happy he is when patients come back after many years and have had very few problems, a result of his skills and the high quality of the implants.

LONG-LASTING AND guaranteed results like that are what make people come to his clinic in Harley Street, a place he sees as a true Mecca for health care. And, it is because of this reputation other dentists refer difficult cases to him, something he thinks is very flattering.

“It is a tough business, but you learn to deal with it, and after all these years I know that with patience and cooperation I can solve most problems,” says Dr. Norton.

SO, WHERE IN his beloved London does he go to relax and enjoy himself? Here are Dr. Michael Norton’s three favourite London spots.

1. Hampstead Heath— it is like the countryside, but in the heart of London.
2. Down by the River Thames—not many cities can compete with our skyline.
3. London’s restaurants—there are so many great ones, and my wife and I love to eat!

Please join us on this quick tour of a city where old traditions meet the latest trends.

London in 2 minutes

Politicians and royals

Within minutes, you can take in much of London’s power elite. You start by the Thames and the Palace of Westminster, home to the Houses of Parliament and Elizabeth Tower—more commonly known as Big Ben, the name given to the heaviest of five bells inside the tower. Just a short stroll away, you find Westminster Abbey, the church where British royals are crowned and laid to rest. Speaking of the royal family, their official residence, Buckingham Palace, is nearby too. You might not meet the queen, but the Changing of the Guard is worth seeing.

The Green Man

London is famous for its pubs, and a pint of beer, lager, ale or bitter is easy to find. But why not try something different? The Green Man in Fitzrovia is a cider pub, offering nine ciders on tap. Should you want to compare that with beer, they have three ales on tap too.
Did you know?
A full English breakfast includes bacon, eggs, grilled tomatoes, fried mushrooms, toast, sausages, baked beans and tea.

In 1967, a new bridge replaced the old London Bridge. The old one was bought and shipped to Lake Havasu City in Arizona, USA.

The London Underground is the world’s oldest and opened in 1863, with 270 stations along 402 km of track.

Greenwich
A visit to the home of time is well worth your time. The Royal Observatory and Greenwich Meridian Line are situated in the most historic of London’s eight royal parks, the 183 acres Greenwich Park. If the sun shines, go there and just enjoy the tranquility and the greens. And, why not stay all day to watch the sun set over London and see how the bright city lights take over.

British Museum
If you just visit one museum in London (there are countless great ones), pick this one. Please don’t be in a hurry though. The British Museum is packed with millions of objects and artifacts from all over the world. To be honest, we can’t even begin to mention them all. Just go there.

Soho
Although there is often a new trendiest part of London, Soho is always on the list. Live entertainment, boutique shops, great food and an abundant nightlife is what this place is all about. And it is an excellent place to start from if you want to discover other areas such as Chinatown, Covent Garden, Piccadilly Circus, Mayfair, Oxford Street and Regent Street.

London theatre
London’s West End is the heart of plays and musicals in London. Star-studded casts play on some 40 venues and no less than 14.6 million people came here in 2013. Right now you can catch classical musicals such as Les Miserables (which has played since 1985), Cats and The Phantom of the Opera, or iconic plays like Death of a Salesman and The 39 Steps, where four actors play 150 roles.

London Eye
If you want to take a good look at London from above, you should try London Eye. Situated on the South Bank, opposite to the Houses of Parliament, this gigantic Ferris wheel has a total height of 135 meters and the diameter of the wheel is 120 meters. It rotates quite slowly, which gives you an excellent chance to study the city for nearly half an hour.
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